LINE LINK PULSING LINE CIRCUITS SD-27617-01, SD-27618-01, SD-27619-01, SD-27620-01, SD-27669-01, AND SD-27942-01 TESTS USING TRUNK TEST CIRCUIT SD-25918-01 NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of testing one way line link pulsing line circuits SD-27617-01 (reverse battery supervision), SD-27619-01 (E and M lead supervision), and two-way line link pulsing line circuit (SD-27618-01 (loop supervision), SD-27620-01 (E and M lead supervision), SD-27669-01 and SD-27942-01 (E and M lead supervision and M lead pulsing by sender). For tests of line sleeves that are monitored by software in Electronic Translation System equipped offices, refer to Section 218-799-510.

1.02 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes. This issue affects Equipment Test Lists.

(a) To revise test procedures to include offices arranged with Electronic Translation System (ETS).

(b) To add Test P "INWATS Measurements" for one-way LLP line circuits, SD-27617-01 and SD-27619-01.

(c) To add Test Q "Automatic Make-Busy" for LLP line circuits that are associated with PBX equipped with emergency transfer circuit, SD-1E290-01.

(d) To include in Part 3 "Preparation" selection of incoming trunk class to prevent test failure.

(e) To make minor changes as required

1.03 The tests covered are:

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A. ***Seizure:*** The following features are checked: (1) Seizure of circuit and sender (2) E diode polarity (3) Answer (4) Talking path. 5

B. ***Disconnect:*** This test checks the ability of the circuit to release when the called and calling customers disconnect. 6

C. ***Overflow:*** This test checks the ability of the circuit to recognize a reorder condition from the sender and to return overflow to the calling customer. 7

D. ***Make-Busy:*** The following features are checked: (1) Ability of all circuits to be manually removed from service on originating service (2) Ability of some circuits to be manually removed from service on incoming service (3) Ability to override make-busy under key control from MTF. 8

E. ***Service-Busy:*** This test checks the ability of the circuit to give a service-busy indication. 9

F. ***RT Diode:*** This test checks the circuit RT diode for polarity, opens, and shorts. 9

G. ***E and M Pulsing:*** This test checks the ability of circuit SD-27619-01,

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SD-27620-01, SD-27669-01, or SD-27942-01 to receive and transmit E and M pulsing. 10

H. Sender Group-Busy: This test checks the ability of line circuits to recognize a sender group-busy condition and to give a busy signal to the number group circuit. 11

I. Incoming Call From PBX: This test checks the ability of the 2-way line circuit to allow the PBX to originate calls. Features tested are: (1) Dial tone cut-through (2) Pulsing received and/or cut through to an originating register (3) Talking path. 11

J. Make-Busy—From Toll Testboard: This test checks the ability of circuit SD-27669-01 or SD-27942-01 to be made busy to outgoing service from the toll testboard when associated PBX is common control type. 14

K. Manual Lockout—Outgoing Call to PBX: The following features of SD-27669-01 or SD-27942-01, when associated with 17E testboard, are checked: (1) Circuit and associated PBX trunk on an outgoing call can be held from the toll testboard after both customers have disconnected (2) Cross-office lockout features of the circuit perform properly. 15

L. Manual Lockout—Incoming Call From PBX: This test checks that, when an incoming call is set up, the toll testboard can block outgoing calls by applying a lockout signal to circuit SD-27669-01 or SD-27942-01 when associated with 17E testboard. 16

M. Automatic Line Lockout—Outgoing Call to PBX: This test checks the ability of circuit SD-27669-01 or SD-27942-01 to automatically lock out and provide disconnect supervision if the called customer fails to disconnect when calling party has disconnected. . . 18

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N. Automatic Line Lockout—Incoming Call From PBX: This test checks the ability of circuit SD-27669-01 or SD-27942-01 to automatically lock out and provide disconnect supervision if the calling customer fails to disconnect when called party has disconnected. . . . 18

O. Subgroup Busy Indication to Number Group: This test checks ability of the circuit to contribute to a subgroup busy indication for the number group when all circuits in a terminal hunting group are busy. 19

P. ▶INWATS Measurements: This test checks the MR, SZ, OF registers and TM time meter associated with one-way LLP line circuits, SD-27617-01 and SD-27619-01, if ETS not provided and the S1, CS scan leads if ETS provided. 25

Q. Automatic Make-Busy: This test checks that LLP line circuits in a line group will be made busy by the Trunk Make-Busy Circuit, SD-25668-01, if emergency transfer circuit at PBX operates due to power or central processor failure.◀ 26

1.04 ***Lettered Steps:*** A letter a, b, c, etc, added to a step number in Parts 3 and 4 of this section indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

1.05 The manner of selecting some circuits and test conditions at the master test frame (MTF) and its associated circuits varies depending on the apparatus options furnished with these circuits. Therefore, where variable means of selection are provided, precise instructions for the selection of circuits and test conditions are not given. Precise instructions for the use of these variable means are given in Section 218-106-301.

1.06 The location statement, At MTF—, is used to refer to all apparatus located on the four basic bays of the MTF.

1.07 On Issue 76D of SD-25800-01, a group of 18 "class of test" lamps was replaced by a single "start test" lamp designated STT. Since the designation given to the lamp is not specific, the lamp will not be called out in the section, as well as the 18 discontinued lamps, such as DT, ORIG, ITDO, ITNP, OGT, etc.

1.08 When the office is arranged for ETS, the distributors and scanners associated with the marker and trunk used in the test call must be in service or in a ***maintenance-busy*** condition—not in an ***out-of-service*** condition. To change a scanner or distributor from an ***out-of-service*** to a ***maintenance-busy*** condition, use the procedure given in the following section.

218-799-701—Taking ETS Equipment Out-of-Service.

1.09 When the trunk under test is arranged for ETS, the first completed test call from the MTF will cause the TST bit to be set in the trunk register associated with the selected trunk, enabling trunk supervisory scanning to be repeated on the FT, CS, and SI lamps at the MTF trunk test circuit. As long as the TST bit is set in the trunk register, supervision will continue to be repeated on the lamps, even on service calls. The TST bit will remain set in the trunk register until (1) a test call is made from the MTF to another trunk, or (2) the command ***STOP:TRK TST*** is entered at the maintenance TTY.

1.10 Local instructions should be followed with reference to notifying the customer before and after performing Test P. Also during Test P, INWATS measurement registers SZ, MR, OF and TM time meter will score. The reporting of these register and time meter operations should be in accordance with local instructions.

1.11 When making tests in No. 5 crossbar offices arranged with Electronic Translation System and test verification requires a completing marker trace output (teletype printout or data dump) to determine the data used to process a call, operate the TCPO key at the master test frame (MTF). The data dump received at the maintenance teletypewriters (TTY) may be in a raw form (binary or hexadecimal numbering system), formatted into decimal and written text, or a combination of both. For additional information on data dumps and formats used, refer to Section 218-799-102.

2. APPARATUS

Tests A Through H, J, K, M, P

2.01 Master test control circuit, SD-25800-01.

2.02 Trunk test circuit, SD-25918-01.

Tests B, I, L, N, O, Q

2.03 Blocking and insulating tools as required. Use tools and apply as covered in Section 069-020-801.

Tests D, E, O, Q

2.04 67C test set, or equivalent, equipped with one KS-6278 connecting clip (for checking the presence or absence of battery or ground).

Tests H, I, L, O, P

2.05 Testing cord, 893 cord, 6 feet long, equipped with two 360A tools (1W13B cord), one KS-6278 connecting clip (for ground connection), and two 624B tools (for connections to terminals).

Test G

2.06 Sender test set circuit (test set), SD-25674-01.

2.07 Sender test circuit, SD-25675-01.

2.08 Testing cord assembly, 20-conductor cord, 6 feet long, equipped with one KS-14461, L3 plug and one KS-14460, L3 plug (W20C cord) (for patching test set to test circuit) as required.

Tests I Through L

2.09 17E toll testboard.

Test I

2.10 Testing cord, P6H cord, 2 feet long, equipped with two molded-on 371A twin plugs.

2.11 For SD-27618-01, one 1014A dial hand test set (handset), equipped with 2W38A cord

assembly consisting of a W2CK cord, 5 feet long, equipped with one 310 plug and one 471A jack.

Tests I, L, N

2.12 For SD-27620-01, SD-27669-01, and SD-27942-01, two 1014A dial hand test sets, equipped with two 2W41A cord assemblies consisting of two W2CJ cords, two 471A jacks, two 360A tools, two 360B tools, three 624B tools (for connecting to terminals) and one KS-6278 connecting clip (for ground connection).

Test P

2.13 32A test set.

3. PREPARATION

STEP	ACTION	VERIFICATION
	Note: Refer to paragraphs 1.04 through 1.10.	
Tests A Through D, F Through H, J, K, M, P		
1	At MTF— Restore all keys and switches.	
2	Momentarily operate RL key.	All lamps extinguished.
3	Operate LLPT key.	
4	Select INC class of call with LT translator indication.	
5	▶Select incoming trunk class as required for completion to called line.◀	
6	Select A_ through G_ digits as required for a line route relay which has access to circuit under test.	
7a	▶If ETS not provided— To select particular line circuit— Set TBT_, TBU_, S_ switches as required to select line circuit within customer group.	
8a	Operate NGT, PBXH, NTLS keys.	
9a	Operate (pull-out) NG (A-H) 7/8 keys (for all but selected number group frame.	
10b	If ETS provided— To select particular line circuit— Set TBT_, TBU_, S_ switches as required to select line circuit within customer group.	
11b	Operate (pull-out) NG (A-H) 1/8, NGT, PLLP keys.	
12c	If post ETS-LLP/AIS provided— To select particular line circuit—	

STEP	ACTION	VERIFICATION
	Set LPNA, LPNB, LPNC, S_ switches as required to select line circuit within customer group.	
13c	Operate PLLP key.◀	
14d	If E and M supervision is provided— Operate E-M key.	
15	Select marker.	
Tests A Through D, F, H, J, K, M		
16	Select OGT class of test.	
Test B		
17e	If automatic line lockout is provided— At relay rack frame— Block nonoperated LLO relay.	

4. METHOD

STEP	ACTION	VERIFICATION
A. Seizure		
17	Operate TLK key.	
18	Momentarily operate ST key.	If E and M supervision is provided— E lamp lighted. If SD-27669-01 not equipped with LO1 relay is under test— LLS lamp lighted. If SD-27669-01 equipped with LO1 relay is under test— LLS lamp ***not*** lighted. If SD-27942-01 not arranged for use with 17E testboard is under test— LLS lamp lighted. If SD-27942-01 arranged for use with improved 17E testboard is under test— LLS lamp ***not*** lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp lighted.◀
19e	If SD-27669-01 not equipped with LO1 relay or SD-27942-01 not arranged for use with 17E testboard is under test— Operate LLR key.	LLS lamp extinguished.

STEP	ACTION	VERIFICATION
	Note: Hold LLR key operated if nonlocking LLR key is provided.	
20	Operate ANS key.	LLS lamp lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— CS lamp lighted.◀ High tone heard.
21	Restore ANS, TLK keys.	LLS lamp extinguished. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1, CS lamps extinguished.◀ High tone silenced.
22	Momentarily operate RL key.	All lamps extinguished.
23	Restore all keys and switches not required in next test.	
B. Disconnect		
18	Operate TLK key.	
19	Momentarily operate ST key.	If E and M supervision is provided— E lamp lighted. If SD-27669-01 not equipped with LO1 relay is under test— LLS lamp lighted. If SD-27669-01 equipped with LO1 relay is under test— LLS lamp ***not*** lighted. If SD-27942-01 not arranged for use with 17E testboard is under test— LLS lamp lighted. If SD-27942-01 arranged for use with improved 17E testboard is under test— LLS lamp ***not*** lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp lighted.◀
20f	If SD-27669-01 not equipped with LO1 relay or SD-27942-01 not arranged for use with 17E testboard is under test— Operate LLR key. ***Note:*** Hold LLR key operated if nonlocking LLR key is provided.	LLS lamp extinguished.
21	Operate ANS key.	LLS lamp lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01

STEP	ACTION	VERIFICATION
		is under test— CS lamp lighted.◀ High tone heard.
22	Restore ANS key.	LLS lamp extinguished. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— CS lamp extinguished.◀ High tone silenced.
23	Operate ANS key.	LLS lamp lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— CS lamp lighted.◀ High tone heard.
24	Restore TLK key.	LLS lamp extinguished. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp extinguished.◀ High tone silenced.
25	Restore ANS key.	If E and M supervision is provided— E lamp extinguished. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— CS lamp extinguished.◀
26	Momentarily operate RL key.	All lamps extinguished.
27	Restore all keys and switches not required in next test.	
C. Overflow		
17	Operate TLK, ROT keys.	
18	Momentarily operate ST key.	120-ipm tone heard. If E and M supervision is provided— E lamp lighted.
19	Restore TLK, ROT keys.	120-ipm tone silenced.
20	Momentarily operate RL key.	All lamps extinguished.
21	Restore all keys and switches not required in next test.	

STEP	ACTION	VERIFICATION
D. Make-Busy		
17	At relay rack frame— Set MB switch associated with line circuit under test to MB.	MB lamp lighted. ***Note:*** The MB lamp will already be lighted if the MB switch for another circuit on the relay rack frame has been operated previously.
18	At MTF— Operate TLK, REC keys.	
19e	▶If ETS provided and CM dump is required— Operate TCP0 key. ***Note:*** Refer to paragraph 1.11.◀	
20f	If S_ keys are provided— Operate two S_ keys corresponding to selected and next higher numbered line of line circuit group in tens block.	
21g	If S switch is provided— Set S switch to position corresponding to selected line of line circuit group in tens block.	
22g	Connect terminals of control bay terminal strip T1 associated with selected and next higher numbered line of line circuit group in tens block. ***Note:*** Terminal strip T1 terminals 20 through 24 and 30 through 34 are associated with S switch positions 0 through 4 and 5 through 9, respectively.	
23	Momentarily operate ST key.	▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp lighted.◀ Trouble record taken. FTT_, FUT_, VGT_, HGT_, VFT_ designations perforated indicating location of line associated with lower numbered line.
24	Momentarily operate RL key.	All lamps extinguished. If SD-27618-01 is being tested— At relay rack frame— D relay operated. If SD-27620-01 is being tested— At relay rack frame— Battery present on terminal 37 of terminal strip B. If SD-27669-01 is being tested and if 17E

STEP	ACTION	VERIFICATION
		testboard is not provided— Battery absent on terminal 35 of terminal strip C. If off-hook to PBX is required— Battery present on terminal 37 of terminal strip B.
25	At relay rack frame— Restore MB switch to N.	MB lamp extinguished. If SD-27618-01 is being tested— D relay is released. If SD-27620-01 is being tested— Battery removed from terminal 37 of terminal strip B. If SD-27669-01 is being tested and if 17E testboard is not provided— Battery present on terminal 35 of terminal strip C. If off-hook to PBX is required— Battery absent on terminal 37 of terminal strip B.
26	At MTF— Momentarily operate ST key. ***Note:*** This step should be performed immediately after the MB switch is restored to N. A customer call could interfere with this test.	If E and M supervision is provided— E lamp lighted. ▶If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp lighted.◀ If SD-27669-01 provided with option W is being tested— LLS lamp lighted.
27	Momentarily operate RL key.	All lamps extinguished.
28	Restore all keys and switches not required in next test.	
E. Service Busy		
1	At relay rack frame— When circuit is idle— Momentarily operate relays in accordance with Table A.	Ground present or battery absent in accordance with Table A on terminal 37 of terminal strip A while relay is operated.
F. RT Diode		
17	Operate TLK, RTK, LLR keys. ***Note:*** Hold LLR key operated if nonlocking LLR key is provided.	
18	Momentarily operate ST key.	LLS lamp ***not*** lighted. If E and M supervision is provided— E lamp lighted.

STEP	ACTION	VERIFICATION

TABLE A

SD-	RELAY AND VERIFICATION			
27617-01	D Grd present	SL Grd present	SLA* Bat. absent	
27618-01	SB Grd present	BY Grd present	G Grd present	
27619-01	SL Grd present	D Grd present	SLA* Bat. absent	
27620-01	MB Grd present	BY Grd present		
27669-01	LO Bat. absent	BY Bat. absent	M* Bat. absent	SP* Bat. absent
27942-01	BY Bat. absent	M Bat. absent	LO1* Bat. absent	MB* Bat. absent

* If provided.

		♦If ETS provided and SD-27617-01 or SD-27619-01 is under test— S1 lamp lighted.♦
19	Restore LLR key.	LLS lamp lighted.
20	Momentarily operate RL key.	All lamps extinguished.
21	Restore all keys and switches not required in next test.	

G. E and M Pulsing

16	Operate SDT key.	
17	Patch SDT1, SDT2 jacks to sender test set SDT1, SDT2 jacks, respectively.	
18	Set SDT switch to DP-OCX.	
19	At sender test set— Momentarily operate ST key.	TTC, A lamps lighted. 0 through 9 lamps lighted momentarily for each digit outpulsed. 0 through 9 lamp for last digit outpulsed remains lighted.

STEP	ACTION	VERIFICATION
20	At MTF— Momentarily operate RL key.	All lamps extinguished.
21	Restore SDT switch.	
22	Restore SDT key.	
23	Remove patching cords from SDT1, SDT2 jacks.	
24	Restore all keys and switches not required in next test.	
H. Sender Group-Busy		
17	At relay rack frame— Set MB switch associated with circuit under test to MB.	MB lamp lighted. ***Note:*** The MB lamp will already be lighted if the MB switch for another circuit on the relay rack frame has been operated previously.
18	Connect ground to terminal 45 of terminal strip A.	If SD-27617-01 or SD-27619-01 is under test— D relay operated. If SD-27618-01 is under test— SB relay operated. If SD-27669-01 or SD-27942-01 is under test— M relay operated.
19	Restore MB switch to N.	MB lamp extinguished.
20	At MTF— Momentarily operate ST key.	BY lamp lighted.
21	Momentarily operate RL key.	All lamps extinguished.
22	At relay rack frame— Remove test connection from terminal strip A.	D , SB, or M relay released.
23	At MTF— Restore all keys and switches not required in next test.	
I. Incoming Call From PBX		
	Note: Ensure that the BY relay is released before proceeding with test.	
SD-27618-01		
1	Set handset switch to MON.	

STEP	ACTION	VERIFICATION
2	At relay rack frame— Insert handset plug into T jack.	
3	Set handset switch to TALK.	Dial tone heard.
4	Dial digits assigned to 1000-Hz tone.	1000-Hz tone heard.
5	Restore handset switch to MON.	1000-Hz tone silenced.
6	Remove handset plug from T jack.	
	SD-27620-01, SD-27669-01 Provided Without 17E Testboard or SD-27942-01 Not Equipped for Use With 17E Testboard	
7	At relay rack frame— Set MB switch associated with circuit under test to MB.	MB lamp lighted. ***Note:*** The MB lamp will already be lighted if the MB switch for another circuit on the relay rack frame has been operated previously.
8a	If SD-27669-01 or SD-27942-01 is under test— When BY relay is released— Insulate 2B of M relay.	
9b	If PBX associated with SD-27669-01 or SD-27942-01 is noncommon control type— Connect battery to terminal 37 on terminal strip B. ***Note:*** Perform this test without delay to avoid interference with incoming calls from PBX.	
10	Set both handset switches to MON.	
11	Connect first handset to terminals 18 and 28 on terminal strip B.	
12	Connect second handset to ground and terminal 27 on terminal strip B.	
13	Restore MB switch to N.	MB lamp extinguished.
14	Set switch of second handset to TALK.	Dial tone heard on first handset.
15	Dial digits assigned to 1000-Hz tone on second handset.	1000-Hz tone heard on first handset.
16	Restore switch of second handset to MON.	1000-Hz tone not heard on first handset.

STEP	ACTION	VERIFICATION
17	Remove both handsets from terminals and ground.	
18b	If PBX associated with SD-27669-01 or SD-27942-01 is noncommon control type— Remove test connections from terminal strip B.	
19a	If SD-27669-01 or SD-27942-01 is under test— Remove insulator from M relay.	
	SD-27669-01 or SD-27942-01 Provided With 17E Testboard	
20	At 17E testboard— When circuit is idle— Plug test cord into TST jack associated with circuit under test.	
21	Operate TALK-MON key to TALK.	
22	Momentarily operate LO key.	LO lamp associated with circuit under test lighted.
23	At relay rack frame— After observing that BY relay is released— Insulate 2B of M relay.	
24b	If PBX associated with SD-27669-01 or SD-27942-01 is noncommon control type— Connect battery to terminal 37 of terminal strip B. ***Note:*** Perform this test without delay to avoid interference with incoming calls from PBX.	
25	At 17E testboard— Plug test cord into SIG jack associated with circuit under test.	
26	Operate TST MON key associated with SIG T cord or SIG TEST jack to TST.	
27	Operate TWD L key to ON-HOOK.	
28	Operate TWD D key to OFF-HOOK.	
29	Operate DIAL key to DIAL DROP.	
30	Operate TALK-MON key to MON.	

STEP	ACTION	VERIFICATION
31	Dial digits assigned to 1000-Hz tone.	1000-Hz tone heard.
32	Remove TST cord from TST jack.	1000-Hz tone silenced.
33	Remove patching cord from SIG jack associated with circuit under test.	All lamps except LO extinguished.
34	At relay rack— Remove insulator from M relay.	
35b	If PBX associated with SD-27669-01 or SD-27942-01 is noncommon control type— Remove test connection from terminal strip B.	
36	At 17E testboard— Plug test cord into TST jack associated with circuit under test.	
37	Operate TALK-MON key to TALK.	
38	Momentarily operate RST key.	LO lamp extinguished.
39	Remove test cord from TST jack.	
40	Restore all keys not required in next test.	

J. Make-Busy—From Toll Testboard

17	Operate TLK key.	
18	At 17E testboard— When circuit is idle— Plug test cord into TST jack associated with circuit under test.	
19	Operate Talk-MON key to Talk.	
20	Momentarily operate LO key.	LO lamp associated with circuit under test lighted.
21	At MTF— Momentarily operate ST key.	
22	At 17E testboard— Momentarily operate RST key.	LO lamp extinguished.
23	Remove test cord plug from TST jack associated with circuit under test.	
24	Restore Talk-MON key.	

STEP	ACTION	VERIFICATION
25	At MTF— Momentarily operate RL key.	All lamps extinguished.
26	Restore all keys and switches not required in next test.	

K. Manual Lockout—Outgoing Call to PBX

17	Operate TLK key.	
18	Momentarily operate ST key.	E lamp lighted. If SD-27669-01 not provided with LO1 relay is under test— LLS lamp lighted.
19	Operate ANS key.	High tone heard.
20	At 17E testboard— Plug test cord into TST jack associated with circuit under test.	
21	Operate Talk key.	
22	Momentarily operate LO key.	LO_ lamp associated with circuit under test lighted.
23	At MTF— Momentarily operate RL key.	All lamps extinguished. High tone silenced. At relay rack frame— LO, BY, TRK, M relays held operated.
24	At 17E testboard— Momentarily operate RST key.	LO_ lamp extinguished. At relay rack frame— All relays released.
25	At 17E testboard— Remove plug of test cord from jack associated with circuit under test.	
26	Restore Talk key.	
27e	If circuit under test is provided with cross-office lockout feature— At MTF— Operate TLK key.	
28e	Momentarily operate ST key.	E lamp lighted.
29e	At 17E testboard— Plug test cord into TST jack associated with circuit under test.	

STEP	ACTION	VERIFICATION
30e	Operate Talk key.	
31e	Momentarily operate LOX key.	LO_ lamp associated with circuit under test lighted.
32e	At MTF— Momentarily operate RL key.	All lamps extinguished. High tone silenced. At relay rack frame— LO, BY, TRK, M relays held operated.
33e	At 17E testboard— Momentarily operate RST key.	LO_ lamp extinguished. At relay rack frame— All relays released.
34e	At 17E testboard— Remove test cord plug from jack associated with circuit under test.	
35e	Restore Talk key.	
36	At MTF— Restore all keys and switches not required in next test.	

L. Manual Lockout—Incoming Call From PBX

1	At relay rack frame— When circuit is idle— Insulate 10B of BY relay.	
2	Insulate 2B of M relay.	
3a	If PBX associated with circuit under test is noncommon control type— Connect battery to terminal 37 on terminal strip B. ***Note:*** Perform this test without delay to avoid interference with incoming calls from PBX.	
4	Set switches of both handsets to MON.	
5	Connect first handset to ground and to terminal 27 on terminal strip B.	
6	Connect second handset to terminals 18, 28 on terminal strip B.	
7	Set switch of first handset to TALK.	Dial tone heard on second handset.

STEP	ACTION	VERIFICATION
8	Dial digits assigned to 1000-Hz tone on first handset.	1000-Hz tone heard on second handset.
9	Remove insulator from BY relay.	
10	Remove insulator from M relay.	
11	At 17E testboard— Plug test cord into TST jack associated with 2-way line circuit under test.	
12	Operate Talk key.	1000-Hz tone heard in toll testboard handset.
13	Momentarily operate LO key.	LO_ lamp associated with circuit under test lighted. If SD-27669-01 is under test— At relay rack frame— LO relay operated. If SD-27942-01 is under test— At relay rack frame— LO1 relay operated.
14	Set switch of first handset to MON.	1000-Hz tone ***not*** heard in second handset. If SD-27669-01 is under test— LO_ relay remains operated; all other relays released. If SD-27942-01 is under test— LO1 relay remains operated; all other relays released.
15	At 17E testboard— Momentarily operate RST key.	LO_ lamp associated with circuit under test extinguished. If SD-27669-01 is under test— At relay rack frame— LO_ relay released. If SD-27942-01 is under test— At relay rack frame— LO1 relay released.
16	At 17E testboard— Remove test cord plug from TST jack associated with circuit under test.	
17	Restore Talk key.	
18	At relay rack frame— Remove both handsets from terminals and ground.	
19a	If PBX associated with circuit under test is noncommon control type—	

STEP	ACTION	VERIFICATION
	Remove battery connection from terminal strip B.	
M. Automatic Line Lockout—Outgoing Call to PBX		
17	Operate TLK key.	
18	Momentarily operate ST key.	E lamp lighted. If SD-27669-01 not equipped with LO1 relay is under test— LLS lamp lighted. If SD-27942-01 not arranged for present or future use with improved 17E testboard is under test— LLS lamp lighted. If SD-27669-01 equipped with LO1 relay is is under test— LLS lamp ***not*** lighted. If SD-27942-01 arranged for present or future use with improved 17E testboard is under test— LLS lamp ***not*** lighted.
19e	If SD-27669-01 not equipped with LO1 relay or SD-27942-01 not arranged for present or future use with improved 17E testboard is under test— Operate LLR key. ***Note:*** Hold LLR key operated if nonlocking LLR key is provided.	LLS lamp extinguished.
20	Operate ANS key.	LLS lamp lighted. High tone heard.
21	Restore TLK key.	LLS lamp extinguished. High tone silenced.
22	Restore ANS key.	All lamps extinguished.
23	Momentarily operate RL key.	
24	Restore all keys and switches not required in next test.	
N. Automatic Line Lockout—Incoming Call From PBX		
1	At relay rack frame— When circuit is idle— Insulate 10B of BY relay.	
2	Insulate 2B of M relay.	

STEP	ACTION	VERIFICATION
3a	If PBX associated with circuit under test is noncommon control type— Connect battery to terminal 37 on terminal strip B. ***Note:*** Perform this test without delay to avoid interference with incoming calls from PBX.	
4	Set switches of both handsets to MON.	
5	Connect first handset to ground and terminal 27 of terminal strip B.	
6	Connect second handset to terminals 18, 28 on terminal strip B.	
7	Set switch of first handset to TALK.	Dial tone heard on second handset.
8	Using first handset, dial digits assigned to nearest telephone set in maintenance center.	Telephone set rings.
9	At telephone set— Remove and replace handset.	At relay rack frame— High tone heard from second handset. If circuit under test is equipped with permanent alarm feature— At MTF— After 6 or 12 minutes— PS lamp lighted. Aisle pilot lamp lighted. Minor alarm sounds.
10	At relay rack frame— Set switch of first handset to MON.	At MTF— PS lamp extinguished. Aisle pilot lamp extinguished. Minor alarm silenced. At relay rack frame— High tone silenced at second handset.
11	Remove test connection and handsets.	
12	Remove insulating tools from BY, M relays.	

O. Subgroup Busy Indication to Number Group

SD-27617-01

1a	If circuit under test is first or intermediate circuit of terminal hunting group— At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	

STEP	ACTION	VERIFICATION
2a	When circuit under test is idle— Block operated D relay.	
3b	If circuit under test is last circuit of terminal hunting group— At relay rack frame— When circuit is idle— Block operated D relay.	
4	Check for ground on terminal 35 of terminal strip B.	Ground present.
5	Block operated SL relay.	
6	Remove blocking tool from D relay.	
7	Check for ground on terminal 35 of terminal strip B.	Ground present.
8	Block operated F relay.	
9	Remove blocking tool from SL relay.	
10	Check for ground on terminal 35 of terminal strip B.	Ground present.
11c	If circuit under test is equipped with SLA relay— Block operated SLA relay.	
12c	Remove blocking tool from F relay.	
13c	Check for ground on terminal 35 of terminal strip B.	Ground present.
14	Remove blocking tool from F or SLA relay.	
15a	If circuit under test is first or intermediate circuit of terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

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16a	▶If circuit under test is first or intermediate circuit of a terminal hunting group—◀ At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	
17a	When circuit under test is idle— Block operated BY relay.	

STEP	ACTION	VERIFICATION
18b	If circuit under test is last circuit of terminal hunting group— At relay rack frame— When circuit is idle— Block operated BY relay.	
19	Check for ground on terminal 35 of terminal strip B.	Ground present.
20	Block operated SB relay.	
21	Remove blocking tool from BY relay.	
22	Check for ground on terminal 35 of terminal strip B.	Ground present.
23d	If circuit under test is equipped with option T— Block operated G relay.	
24d	Remove blocking tool from SB relay.	
25d	Check for ground on terminal 35 of terminal strip B.	Ground present.
26	Remove blocking tool from SB or G relay.	
27a	If circuit under test is first or intermediate circuit of terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

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28a	▶If circuit under test is first or intermediate circuit of a terminal hunting group—◀ At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	
29a	When circuit under test is idle— Block operated D relay.	
30b	If circuit under test is last circuit of terminal hunting group— At relay rack frame— When circuit is idle— Block operated D relay.	
31	Check for ground on terminal 35 of terminal strip B.	Ground present.

STEP	ACTION	VERIFICATION
32	Block operated SL relay.	
33	Remove blocking tool from D relay.	
34	Check for ground on terminal 35 of terminal strip B.	Ground present.
35	Block operated F relay.	
36	Remove blocking tool from SL relay.	
37	Check for ground on terminal 35 of terminal strip B.	Ground present.
38e	If circuit under test is provided with SLA relay— Block operated SLA relay.	
39e	Remove blocking tool from F relay.	
40e	Check for ground on terminal 35 of terminal strip B.	Ground present.
41	Remove blocking tool from F or SLA relay.	
42a	If circuit under test is first or intermediate circuit of a terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

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43a	♦If circuit under test is first or intermediate circuit of a terminal hunting group—♦ At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	
44a	When circuit under test is idle— Block operated BY relay.	
45b	If circuit under test is last circuit of terminal hunting group— At relay rack frame— When circuit is idle— Block operated BY relay.	
46	Check for ground on terminal 35 of terminal strip B.	Ground present.
47	Block operated M relay.	

STEP	ACTION	VERIFICATION
48	Remove blocking tool from BY relay.	
49	Check for ground on terminal 35 of terminal strip B.	Ground present.
50	Remove blocking tool from M relay.	
51a	If circuit under test is first or intermediate circuit of a terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

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52a	◗If circuit under test is first or intermediate circuit of a terminal hunting group—◖ At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	
53a	When circuit under test is idle— Block operated BY relay.	
54b	If circuit under test is last circuit of terminal hunting group— Block operated BY relay.	
55	Check for ground on terminal 35 of terminal strip B.	Ground present.
56	Block operated SP relay.	
57	Remove blocking tool from BY relay.	
58	Check for ground on terminal 35 of terminal strip B.	Ground present.
59	Block operated LO relay.	
60	Remove blocking tool from SP relay.	
61	Check for ground on terminal 35 of terminal strip B.	
62f	If circuit under test is provided with option B— Block operated M relay.	
63f	Remove blocking tool from LO relay.	
64f	Check for ground on terminal 35 of terminal strip B.	Ground present.

STEP	ACTION	VERIFICATION
65	Remove blocking tool from LO or M relay.	
66a	If circuit under test is first or intermediate circuit of terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

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67a	♦If circuit under test is first or intermediate circuit of a terminal hunting group—♦ At relay rack frame— Connect ground to terminal 35 of terminal strip B of succeeding circuit.	
68a	When circuit under test is idle— Block operated M relay.	
69b	If circuit under test is last circuit of terminal hunting group— At relay rack frame— When circuit is idle— Block operated M relay.	
70	Check for ground on terminal 35 of terminal strip B.	Ground present.
71	Block operated BY relay.	
72	Remove blocking tool from M relay.	
73	Check for ground on terminal 35 of terminal strip B.	Ground present.
74g	If circuit under test is equipped with LO1 relay— Block operated LO1 relay.	
75g	Remove blocking tool from BY relay.	
76g	Check for ground on terminal 35 of terminal strip B.	Ground present.
77g	Remove blocking tool from LO1 relay.	
78h	If circuit under test is equipped with MB relay— Block operated MB relay.	
79h	Remove blocking tool from BY relay.	

STEP	ACTION	VERIFICATION
80h	Check for ground on terminal 35 of terminal strip B.	Ground present.
81h	Remove blocking tool from MB relay.	
82a	If circuit under test is first or intermediate circuit of terminal hunting group— Remove test connection from terminal strip B of succeeding circuit.	

P. ◗INWATS Measurements

Note: See paragraph 1.10.

ETS Not Provided

16	Operate MISC, TLK keys.	
17	At auxiliary line circuit frame— Insert plug of 32A test set into RC jack.	
18	Momentarily operate white (ST) button.	SZ register operates. Audible ringing tone heard. When customer answers— MR register operates. TM timer starts. Audible ringing tone silenced.
19	Momentarily operate red (RL) button.	TM timer stops.
20	Remove plug of 32A test set from RC jack.	
21	At MTF— Restore all keys and switches. ***Note:*** To test the OF register associated with LLP line group refer to Section 218-232-506, Test H.	All lamps extinguished.

ETS Provided

22	Operate MISC, TLK keys.	
23	Momentarily operate ST key.	S1 lamp lighted. Audible ringing tone heard. When customer answers— CS, LLS lamps lighted. Audible ringing tone silenced.
24	Momentarily operate RL key.	All lamps extinguished.
25	Restore all keys and switches.	

STEP	ACTION	VERIFICATION
Q. Automatic Make Busy		
	Note: This test should be performed during periods of light traffic. If LLP line group consists of twelve or less circuits, all circuits will be made busy during this test.	
1	When circuit under test is idle— At trunk make busy circuit— Block operated LBA relay associated with circuit under test.	
2	At circuit under test— Check for ground on terminal 37 of terminal strip A.	Ground present.
3	At trunk make busy circuit— Remove blocking tool from LBA relay.	LBA relay released.